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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,358	11/17/2003	Xiandong Wang	08935-295001	7033
26161	7590	12/15/2005	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/716,358

Applicant(s)

WANG ET AL.

Examiner

Monique M. Wills

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/14/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statements filed November 14, 2003 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, the information disclosure statement(s) is/are being considered by the examiner.

### *Claim Rejections – 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for specific cathode oxide materials, such as  $\text{LiBiO}_3$ ,  $\text{Li}_3\text{BiO}_4$ ,  $\text{Li}_5\text{BiO}_5$ ,  $\text{Li}_7\text{BiO}_6$ ,  $\text{Li}_4\text{Bi}_2\text{O}_7$ ,  $\text{Li}_5\text{Bi}_3\text{O}_{10}$  or  $\text{KbiO}_3$  does not reasonably provide enablement for the plurality of other cathodic oxides containing an alkali metal and pentavalent bismuth. The

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specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Specifically, claims 1, 10, 22 & 36 relate to an extremely large number of possible cathodic materials. The claims contain so many options or possible permutations and provisos that a lack of clarity exists, and the specification does not enable the vast options outside the list relayed in claim 2, 12, 16, 27 & 31. Therefore, appropriate correction is required.

*Allowable Subject Matter*

Claims 2, 12, 16, 27 & 31 would be allowable if rewritten to overcome the statutory type (35 U.S.C. 101) double patenting rejection and rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

The prior art, such as Fiordiponti et al., "Behavior of  $\text{Bi}_2\text{O}_3$  as a Cathode for Lithium Cells" teaches a  $\text{Bi}_2\text{O}_3$ , but the reference is silent to an alkaliated form of the bismuth oxide. Therefore, the instant claims are patentably distinct from Fiordiponti.

*Double Patenting*

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-15, 17-18, 20-30, 32-41 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-9, 30-39, 60-72 & 92-97 of copending Application No. 10/913,922. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. The applicants claim the same invention as follows:

Claim 1 of '922 identically claims the primary battery of instant claim 1 comprising: a cathode comprising an oxide containing an alkali metal and pentavalent bismuth, the alkali metal being lithium or potassium; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

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Claim 2 of ' 922 identically claims the primary battery of instant claim 2, wherein the oxide is  $\text{LiBiO}_3$ ,  $\text{Li}_3\text{BiO}_4$ ,  $\text{Li}_5\text{BiO}_5$ ,  $\text{Li}_7\text{BiO}_6$ ,  $\text{Li}_4\text{Bi}_2\text{O}_7$ ,  $\text{Li}_5\text{Bi}_3\text{O}_{10}$  or  $\text{KbiO}_3$ .

Claim 3 of ' 922 identically claims the primary battery of instant claim 3, wherein the oxide comprises an electrically conductive portion.

Claim 4 of ' 922 identically claims the primary battery of instant claim 4, wherein the electrically conductive portion is an electrically conductive surface coating comprising carbon or a metal oxide.

Claim 5 of ' 922 identically claims the primary battery of instant claim 5, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 6 of ' 922 identically claims the primary battery of instant claim 6, wherein the anode comprises zinc.

Claim 7 of ' 922 identically claims the primary battery of instant claim 7, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

Claim 8 of ' 922 identically claims the primary battery of instant claim 8, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 9 of ' 922 identically claims the primary battery of instant claim 9, wherein the separator is capable of trapping soluble bismuth species.

Claim 30 of ' 922 identically claims the primary battery of instant claim 10, comprising: a cathode comprising an oxide containing an alkaline earth metal and pentavalent bismuth; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

Claim 31 of ' 922 identically claims the primary battery of instant claim 11, wherein the alkaline earth metal is selected from the group consisting of magnesium, calcium, strontium, and barium.

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Claim 32 of ' 922 identically claims the primary battery of instant claim 12, wherein the oxide is  $\text{MgBi}_2\text{O}_6$ ,  $\text{Sr}_2\text{Bi}_2\text{O}_7$ , or  $\text{Ba}_2\text{Bi}_2\text{O}_6$ .

Claim 33 of ' 922 identically claims the primary battery of instant claim 13, wherein the oxide comprises an electrically conductive portion.

Claim 34 of ' 922 identically claims the primary battery of instant claim 14, wherein the electrically conductive portion is an electrically conductive surface coating comprising carbon or a metal oxide.

Claim 35 of ' 922 identically claims the primary battery of instant claim 15, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 36 of ' 922 identically claims the primary battery of instant claim 17, wherein the anode comprises zinc.



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Claim 37 of ' 922 identically claims the primary battery of instant claim 18, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

Claim 38 of ' 922 identically claims the primary battery of instant claim 20, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 39 of ' 922 identically claims the primary battery of instant claim 21, wherein the separator is capable of trapping soluble bismuth species.

Claim 60 of ' 922 identically claims the primary battery of instant claim 22, comprising: a cathode comprising an oxide containing a metal and pentavalent bismuth, the metal being a main group metal, a lanthanide or a transition metal other than silver; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

Claim 61 of ' 922 identically claims the primary battery of instant claim 23, wherein the metal is selected from the group consisting of scandium,

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vanadium, manganese, iron, cobalt, nickel, copper, zinc, yttrium, zirconium, niobium, molybdenum, ruthenium, palladium, cadmium, tantalum, and tungsten.

Claim 62 of ' 922 identically claims the primary battery of instant claim 24, wherein the metal is selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, and ytterbium.

Claim 63 of ' 922 identically claims the primary battery of instant claim 25, wherein the metal is selected from the group consisting of indium, tin, antimony, and lead.

Claim 64 of ' 922 identically claims the primary battery of instant claim 26, wherein the oxide further comprises an alkali metal or an alkaline earth metal.

Claim 65 of ' 922 identically claims the primary battery of instant claim 27, wherein the oxide is  $\text{ZnBi}_2\text{O}_6$ ,  $\text{Cu}_2\text{Bi}_2\text{O}_7$ ,  $\text{CdBi}_2\text{O}_6$ , or  $\text{Sr}_2\text{ScBiO}_6$ .

Claim 66 of ' 922 identically claims the primary battery of instant claim 28, wherein the oxide comprises an electrically conductive portion.

Claim 67 of ' 922 identically claims the primary battery of instant claim 29, wherein the electrically conductive portion is an

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electrically conductive surface coating comprising carbon or a metal oxide.

Claim 68 of ' 922 identically claims the primary battery of instant claim 30, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 69 of ' 922 identically claims the primary battery of instant claim 32, wherein the anode comprises zinc.

Claim 70 of ' 922 identically claims the primary battery of instant claim 33, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

Claim 71 of ' 922 identically claims the primary battery of instant claim 34, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 72 of ' 922 identically claims the primary battery of instant claim 35, wherein the separator is capable of trapping soluble bismuth species.

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Claim 92 of ' 922 identically claims the primary battery of instant claim 36, comprising: an alkaline electrolyte; a cathode comprising an oxide containing pentavalent bismuth, the oxide having a solubility at room temperature less than about 75 ppm bismuth in the electrolyte; an anode; and a separator between the cathode and the anode.

Claim 93 of ' 922 identically claims the primary battery of instant claim 37, wherein the solubility at room temperature is less than about 50 ppm bismuth.

Claim 94 of ' 922 identically claims the primary battery of instant claim 38, wherein the oxide has a volumetric specific capacity of at least about 0.8 Ah/cm.sup.3.

Claim 95 of ' 922 identically claims the primary battery of instant claim 39, wherein the oxide has a volumetric specific capacity of at least about 1.5 Ah/cm.sup.3.

Claim 96 of ' 922 identically claims the primary battery of instant claim 40, having an average running voltage of at least about 1.4 V.

Claim 97 of ' 922 identically claims the primary battery of instant claim 41, having an average running voltage is at least about 1.6 V.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

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**FRANKIE L. STINSON**  
**PRIMARY EXAMINER**  
**GROUP 3400-1700**

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